National Institute of Environmental Health Sciences

Factors affecting in-hospital heat-related mortality: A multi-city case-crossover analysis

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Abstract:

Background: Several studies have identified strong effects of high temperatures on mortality at population level; however, individual vulnerability factors associated with heat-related in-hospital mortality are largely unknown. The objective of the study was to evaluate heat-related in-hospital mortality using a multi-city case-crossover analysis. Methods: We studied residents of four Italian cities, aged 65+ years, who died during 1997–2004. For 94 944 individuals who died in hospital and were hospitalised two or more days before death, demographics, chronic conditions, primary diagnoses of last event and hospital wards were considered. A city-specific case-crossover analysis was performed to evaluate the association between apparent temperature and mortality. Pooled odds ratios (OR) of dying on a day with a temperature of 30°C compared to a day with a temperature of 20°C were estimated with a random-effects meta-analysis. Results: We estimated an overall OR of 1.32 (95% confidence interval: 1.25, 1.39). Age, marital status and hospital ward were important risk indicators. Patients in general medicine were at higher risk than those in high and intensive care units. A history of psychiatric disorders and cerebrovascular diseases gave a higher vulnerability. Mortality was greater among patients hospitalised for heart failure, stroke and chronic pulmonary diseases. Conclusions: In-hospital mortality is strongly associated with high temperatures. A comfortable temperature in hospitals and increased attention to vulnerable patients during heatwaves, especially in general medicine, are necessary preventive measures.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors, Meteorological Factors, Temperature

Air Pollution: Ozone, Particulate Matter

Temperature: Extreme Heat, Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Italy

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Injury, Other Health Impact

Other Health Impact: heat related mortality

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Elderly, Low Socioeconomic Status

Other Vulnerable Population: pre-existing medical conditions

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified